Dental Service Use and Dentition Status among 12 year-old Schoolchildren in East District, Yangon Region

Ko Ko Soe*, Thein Tun Oo, Saw Nandar Aung, Khin Aye Thant, Aung Mon,
Zin Mar Win Naing, Tay Zar lin
Department of Preventive and Community Dentistry, University of Dental Medicine, Yangon
*Corresponding Author: drkokosoe@gmail.com

Abstract **- Good oral health is an essential part of better general health and well-being throughout life. Regular dental visit has been found to provide an opportunity for oral health care professionals to diagnose illness, provide primary preventive services and treat particular dental disease and other oral health related problems. The aim of this study was to assess dental service use and dentition status among 12 year-old schoolchildren in two townships from East District, Yangon Region. Cross-sectional, descriptive, school-based, non-intervention type of study was carried out among 482 (250 boys and 232 girls) schoolchildren in 2017-18. Data concerning socio-demographic characteristics, dental visit pattern and dentition status were determined. The present sample was likely to represent urban population and nearly half of their parents had only completed primary and middle school education. Almost the same distribution pattern of education was found between fathers and mothers. Two third of fathers (65.6%) and one third of mothers (30.7%) were unskilled workers and more than half of mothers (55.4%) were dependent. History of dental service utilization was reported in 42.9% of students and main reason was toothache (52.2%). Among those who had visited to the dentist (n=207), most of them (86.5%) visited to the private dental surgeons and 65.2% had received treatment of tooth extraction. Approximately 40.0% of students acquired oral health knowledge from dental surgeon. Most of the students (92.9%) responded that they should see the dental surgeon at least once a year for routine dental checkup. Dental caries prevalence was 67.0% with mean DMF-T of 0.65 (SD 1.16) where decayed was a dominant portion. No relation-ships were observed between dental caries and gender, parental education, parental occupation, dental visiting pattern. However, higher caries prevalence was found in schoolchildren with lower mothers' educational level. In addition, lower level of dental visit pattern was observed among those with low parental educational level. Thus preventive as well as curative measures should be promoted along with school dental health program.**

Keywords; dentition status, dental caries, dental service use, 12 year-old schoolchildren

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Introduction

Good oral health is an essential part of better general health and well-being throughout life. Relationship between oral and general health is documented in several research findings. Maintaining good oral health is vital because the burden of oral disease is manifested in poor nutrition, school absences, missed workdays and increasing public and private expenditures for dental care. Better health

is important not only for the quality of life of an individual but also for economic growth and sustainable development of entire nation (Byrne, 2004).

Tooth decay is a major oral health problem and the most prevalent oral disease among children in the world (Viswanath & Sabu, 2014; Mathur *et al*., 2016) and it can greatly affect a child's daily life. Nowadays, several parts of world are facing with tooth decay and Center of Disease Control (CDC, 2010) estimated that more than half of the US children aged 12-15 years old experienced dental caries. More importantly, untreated decays are major and remaining problem in developing countries (Viswanath & Sabu, 2014). The global average DMF-T for 12 year-old schoolchildren was 1.67 and its prevalence was 78%. In Asia, the mean numbers of DMF-T for 12 year-old schoolchildren were Singapore (0.6) was the lowest, Japan (1.4), Cambodia (3.5) and Philippines (3.3) in 2011 respectively (Cheng, 2014).

Dental visit is one of the influences for oral health status of an individual as well as population group. Dental service utilization can be defined as "the percentage of the population who access dental services over a specified period of time" (Craft & Croucher, 1980; Brown, 1999). Regular dental visit has been found to provide an opportunity for oral health care professionals to diagnose illness, provide primary preventive services and treat particular dental disease and other oral health related problems (Macek *et al*., 2005). The studies hypothesized regular use of oral health care services has contributed substantially to healthy mouths for both children and adults.

Oral health objectives for healthy people 2010 call for an increase in the proportion of those aged 2 years or older who use the oral health care system at least once a year and an increase in the proportion of low income people younger than 19 years of age who are known to be at a higher risk for disease (Macek *et al*., 2005). In Myanmar, oral health care is provided and organized by both private and public providers. The Ministry of Health and Sports is taking the responsibility of providing comprehensive oral health care services in all hospitals and school health teams. Township Hospitals and School Health Teams are providing health care services including primary oral health care services and also acting as the first referral health institutions for those who required dental care. More advanced secondary and tertiary health care services are provided at the Region/ State Level hospitals, Central and Teaching hospitals (MOHS, 2016).

Most often children from low income or minority families have problems receiving the care they need. Some of the serious factors identified to limit access to dental care for these children include lack of finances, lack of transportation, language and cultural barriers and lack of perceived need for care (Kanello, 1999; Denloye *et al*., 2010). Studies demonstrated that importance of service utilization among cohort of student population so as to enable dental professionals plan programs that will ensure equity in access to oral care (Ogini, 2004; Oredugba, 2006; Ajayi & Ajayi, 2007) and suggsted to conduct utilization research among young adolescents with a view of assessing their views and beliefs on the regular use of oral health care services.

Different figures of dental service use were demonstrated in many studies where over 80 percent of 13 to 14 year-old junior secondary students from Nigeria and 25 to 50 percent of university students from some ASEAN countries were never been to the dentists (Denloye *et al*., 2010;

Peltzer & Pengpid, 2017). There is a little amount of data concerning utilization of oral health care services and availability of school oral health services among schoolchildren in Myanmar. Moreover, there is only few data relating to the availability and accessibility of oral health care services not only from the public sector but also from the private sectors.

Twelve year-olds are important as they are likely to have all the permanent teeth except the last molars and the group has been chosen for the global indicator age group for international comparisons and surveillance of oral disease trends (WHO, 2013). In addition, the schoolchildren have some competency to respond questions about health service uses and can give examples for oral health promotion and establishment of effective referral system for student population. So, the present study was aimed to study the dental service utilization pattern and dentition status among 12 year-old schoolchildren from two townships in the East District, Yangon Region. The findings available from this study can facilitate and strengthening school oral health program for promoting oral health of future generation.

Materials and Methods

A cross-sectional, descriptive, school-based, non-intervention type of study was carried out in Thingangyun and Dagon Seikkan Townships, East District, Yangon Region from November 2017 to January 2018. After getting agreement from the respective educational authorities, one Basic Education High School from each selected township was chosen randomly and explained the procedure to the heads of the schools. With the help of the teachers, all eligible 12 year-old schoolchildren were selected according to the inclusion criteria and asking for the consent from both students and guardians. The study included 482 students of both genders who were 12 year-old in their last birthday.

After getting the consent, the investigator asked a participant about socio-demographic data and utilization questionnaire (including 10 questions) by using face to face interview method in a prepared room. Then, students were examined to assess dentition status using decayed, missing and filled teeth index (DMF-T index) applying WHO (2013) criteria. The examination was performed by the examiner and a trained recorder under natural day light. The infection control guidelines recommended by WHO (2013) were used throughout. To prevent any disturbances from their learning schedule, data collection was carried out during their lunch-time hour.

Collected data were cleansed and entered in Statistical Package for Social Sciences (SPSS) (version 22.0). Data analysis was done accordingly. The continuous variables were expressed by means and standard deviations and the categorical variables were described by frequencies and percent and analyzed by Chi-square test.

Ethical Consideration

This study was approved by Research and Ethical Committee of University of Dental Medicine, Yangon. The informed consent form was sent prior to examination. After describing detailed procedure of this research, participants were asked for sign to the consent. The collected data were kept confidential. Any participant with necessary treatment was referred to the University of Dental Medicine, Yangon.

Statistical Analysis

The continuous and categorical vari-

ables were expressed by t-test and Chi-square. Statistical analyses were performed using Statistical Package for Social Science (SPSS) (version 22.0). Statistical significances were considered at $p<0.05$. (Confidence interval 95%).

Results

In this study, 482 twelve year-old schoolchildren (250 boys and 232 girls) were participated. Regarding ethnicity, 87.1% reported as Bamar and foreign blood such as Chinese and Indian, was the second most common ethnic group (7.5%). The socio-demographic attributes i.e. educational level and occupations of their parents were shown in Table 1. The present sample was mostly represented urban population and nearly half of their parents had completed primary and middle school education. Almost the same distribution pattern of education was found between fathers and mothers. Two third of fathers (65.6%) and one third of mothers (30.7%) were unskilled workers and more than half of mothers (55.4%) were dependent.

Less than half of students (42.9%) had visited dental clinic and dental visit behavior was shown in Figure 1 and Table 2. History of dental service utilization was reported in 42.9% of students and among them (n=207), main reason was toothache (52.2%). Among those who had visited to the dentist (n=207), most of them (86.5%) visited to the private dental surgeons and 65.2% had received treatment of tooth extraction.

Relating to dentition status, prevalence of dental caries was 31.6% in boys and 34.5% in girls with mean DMF-T were 0.64 (SD 1.18) and 0.66 (SD 1.15) (Table 3). There were no statistical associations between dental caries experience and gender, parental education level and occupation, dental service utilization pattern of the participants. However, higher caries prevalence was found in schoolchildren with lower maternal educational level. In addition, lower numbers of dental visit were observed among those who parental educational level was low (Table 5).

Table 1. Distribution of schoolchildren by socio-demographic attributes (n=482)

Socio-demographic attributes	School children n (%)
Fathers' education level	
Can read and write, no formal education	23 (4.8)
Primary school education	63 (13.1)
Completed primary school education	
Completed middle school education	114 (23.7)
Completed high school education	109 (22.6)
Graduated	54 (11.2)
Don't know	67 (13.9)
	52 (10.8)
Mothers' education level	
Can read and write, no formal education	22 (4.6)
Primary school education	75 (15.6)
Completed primary school education	
Completed middle school education	108 (22.4)
Completed high school education	114 (23.7)
Graduated	45 (9.3)
Don't know	74 (15.4)
	44 (9.1)
Fathers' occupation	
Unskilled worker	316 (65.6)
Farmer	15 (3.1)
Government servant	27 (5.6)
Professional	13 (2.7)
Dependent	8 (1.7)
Merchant	24 (5.)
Others	79 (16.5)
Mothers' occupation	
Unskilled worker	148 (30.7)
Farmer	8 (1.7)
Government servant	18 (3.7)
Professional	4 (0.8)
Dependent	267 (55.4)
Merchant	9 (1.9)
Others	28 (5.7)

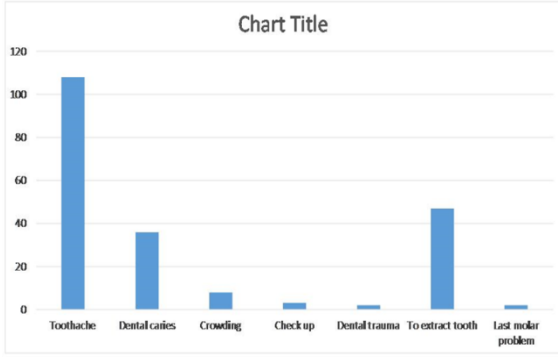

Figure 1. Reason of dental visit (n=207)

Table 2. Dental visit behavior of school-children (n=207)

Dental visit behavior	School Children n (%)
Type of service provider	
Dental surgeon from school health	10 (4.8)
Township dental surgeon	11 (5.3)
Private dental surgeon	179 (86.5)
Charity dental clinic	5 (2.4)
University of Dental Medicine, Yangon	2 (1.0)
Type of treatment received	
Tooth extraction	135 (65.2)
Dressing	32 (15.5)
Filling	31 (15.0)
Scaling	1 (0.5)
Orthodontic treatment	3 (1.4)
Routine dental check up	5 (2.4)

Table 3. Dentition status of schoolchildren (n=482)

Dentition status	Male	Female	Total
Mean D (SD)	0.61 (1.15)	0.64 (1.11)	0.62 (1.13)
Mean M (SD)	0.03 (0.22)	0.01 (0.11)	0.02 (0.18)
Mean F (SD)	0	0.01 (0.11)	0.01 (0.08)
Mean DMFT (SD)	0.64 (1.18)	0.66 (1.15)	0.65 (1.16)
Caries prevalence (%)	79 (31.6)	80 (34.5)	159 (33.0)

Table 4. Proportion of dental caries experience among school children by gender, location, father's and mother's education (n=482)

	Dental caries experience		X^2	*p* value
	Presence n (%)	Absence n (%)		
Gender				
Male	79 (31.6)	171 (68.4)	0.452	0.501
Female	80 (34.5)	152 (65.5)		
Location				
Urban	137 (33.2)	276 (66.8)	0.044	0.833
Rural	22 (31.9)	47 (68.1)		
Father's education				
High	67 (29.1)	163 (70.9)	2.961	0.085
Low	92 (36.5)	160 (63.5)		
Mother's education				
High	64 (27.5)	169 (72.5)	6.216	0.013*
Low	95 (38.2)	154 (61.8)		

* Statistically significant

Table 5. Proportion of dental service utilization among school children by gender, location, father's and mother's education (n=482)

	Dental service utilization		X^2	*p* value
	Presence n (%)	Absence n (%)		
Gender				
Male	109 (43.6)	141 (56.4)	0.091	0.763
Female	98 (42.2)	134 (57.8)		
Location				
Urban	182 (44.1)	231 (55.9)	1.482	0.224
Rural	25 (36.2)	44 (63.8)		
Father's education				
High	119 (51.7)	111 (48.3)	13.882	<0.001*
Low	88 (34.9)	164 (65.1)		
Mother's education				
High	126 (54.1)	107 (45.9)	22.808	<0.001*
Low	81 (32.5)	168 (67.5)		

* Statistically significant

Discussion

The regular use of oral health care services has contributed substantially to oral health among millions of children and adults (Macek *et al.*, 2005). The present study aimed to assess the pattern of dental

service use among 12 year-old schoolchildren in Yangon Region. Data concerning socio-demographic characteristics, dental service uses and dentition status were collected. Since the study was carried out in Thingangyun and Dagon Seikkan Townships of the East District, the present sample was likely to represent urban population.

In this study, the same distribution pattern of education was found between fathers and mothers. Only a quarter of fathers (25.1%) and mothers (24.7%) were completed high school and half of them were graduated. Almost two third of fathers (65.6%) and one third of mothers (30.7%) were unskilled workers and more than half of mothers (55.4%) were dependent. Therefore, the present sample might represent the lower and lower middle socioeconomic status.

More than half of the participants (57.1%) had never been to the dentist in the present study. One study from Brazil demonstrated that only 15.0% of 12 year-old schoolchildren were not used dental services (Menezes, 2010). The main reason of dental visit in this study was toothache. Among those who had visited to the dentist (n=207), most of them (86.5%) visited to the private dental surgeons and 65.2% had received treatment of tooth extraction, followed by dressing (15.5%) and filling (15.0%). The present sample might show the pattern of dental visiting only when they suffered pain. However, dental visit pattern of other population groups from different geographical regions should also be assessed.

Dental caries prevalence was 33.0% with mean DMF-T of 0.65 (SD 1.16) where decayed was a dominant portion. Dental caries status was not different between boys and girls. According to the WHO, the level of dental caries in this study group was in very low category. The present findings were not different from larger studies where mean DMFT was 0.74 (MDA, 2006) and 0.80 (Aung *et al*., 2018) respectively. Similarly, the present finding of caries prevalence (33.0%) was not much different from previous studies where caries prevalence for 12 year-old children were 51.9% (MDA, 2006) and 34.8% (Aung *et al.*, 2018) respectively. Dental caries experience in Myanmar might not change significantly in the last two decades.

In the present study, the socio-demographic characteristics did not relate to both dental caries status and dental service utilization. However, lower dental service utilization was observed among students with low parental educational levels. The participants in this study reported that very low level of school dental health services utilization. Most of them (179 out of 207) (86.5%) visited to the private dental clinic. Thus preventive as well as curative measures should be promoted along with school dental health program. The results of this study may point out the current situation and suggestion of future strengthening of school oral health program in Myanmar.

Conclusion

Low levels of dental caries status and dental service use were observed among 12 year-old schoolchildren in this study. Pattern of dental visit only when suffering pain and visit to the private was also observed. Thus, strengthening of school oral health care including promotion of oral health education session should be implemented in Myanmar.

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The authors declare there is no potential conflict of interest.

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